CHAPTER 8

LIFE PRESERVER, LOW-PROFILE FLOATATION COLLAR, LPU-37/P

Section 8-1. Description

8-1. GENERAL.

8-2. The LPU-37/P Life Preserver, Low Profile Floatation Collar (LPFC), is equipped with two manually operated inflation devices. The LPU-37/P is designed as a constant wear item for use with compatible flight clothing and other crew equipment. It weighs 3 1/4 pounds and provides a minimum of 65 pounds of buoyancy. There are no survival items attached to the life preserver and it does not interfere with removal of a non-integrated parachute harness. It has a zipper (slide fastener) the same color as the exterior cover to aid in distinguishing it from the LPU-33/P. The LPU-33/P has a black zipper and is equipped with automatic inflation devices.

NOTE

The CFA for LPFC (LPU-37/P) is Naval Air Warfare Center Weapons Division, China Lake, CA 93555.

8-3. CONFIGURATION.

8-4. The LPU-37/P consists of an exterior cover assembly (casing assembly), inflation shell assembly, and a flotation assembly. The flotation assembly consists of two independent inflatable assemblies (bladders) each of which is equipped with a manual inflation device and an oral inflation valve. The bladders are packed in a black cloth inflation shell assembly. Four straps on the inflation shell assembly pass through grommets on the exterior cover assembly to attach the LPU-37/P to the survival vest. A beaded handle which connects by lanyard to an inflation device is mounted on each side of the exterior cover to initiate inflation of the life preserver. Two additional straps adjust a plastic buckle which snaps across the wearer's chest to help keep the LPU-37/P in position when worn.

8-5. INFLATION SHELL ASSEMBLY. The black cloth inflation shell assembly contains the two inflatable bladders. The design of the shell assembly provides the shape for the flotation collar. There are openings in the shell assembly through which the inflation valve stem and oral inflation tube of each bladder extend. A manual inflation device is secured to each valve stem by a cap nut which also serves as a cap for the valve stem. When installed each inflation device and its CO_2 cylinder are wrapped in a protective cover. The oral inflation valve tubes, which are provided as backup to CO_2 cylinder inflation, are retained by inserting the top of each tube in retainer loops attached to the inflation shell assembly.

8-6. APPLICATION.

8-7. The LPU-37/P LPFC is designated for use by aircrew personnel operating aircraft which are not equipped with ejection seat systems. It is designed for constant wear when wearing compatible flight clothing. The LPU-37/P is authorized for use with the A/P22P-11 emergency egress crew backpack assembly and A/P22P-20 crew backpack assembly in E-2C aircraft only.

8-8. FUNCTION.

8-9. The LPU-37/P is inflated by pulling the beaded handles in a natural downward motion. Each beaded handle is connected by a lanyard to the actuating lever of an inflation device. Pulling the handles initiates zipper separation on the exterior cover and causes the CO_2 cylinder to be punctured, inflating the bladders. The zipper on the exterior cover continues to separate as the bladders inflate to provide head-out-of-water buoyancy.

8-10. In an emergency situation, the oral inflation tubes may be used to top off the inflated bladders, maintain inflation in a leaky bladder, or inflate a bladder if an inflation device malfunctions. The oral inflation tube may also be used to inflate the bladders during an inspection test or to evacuate air to perform packing.

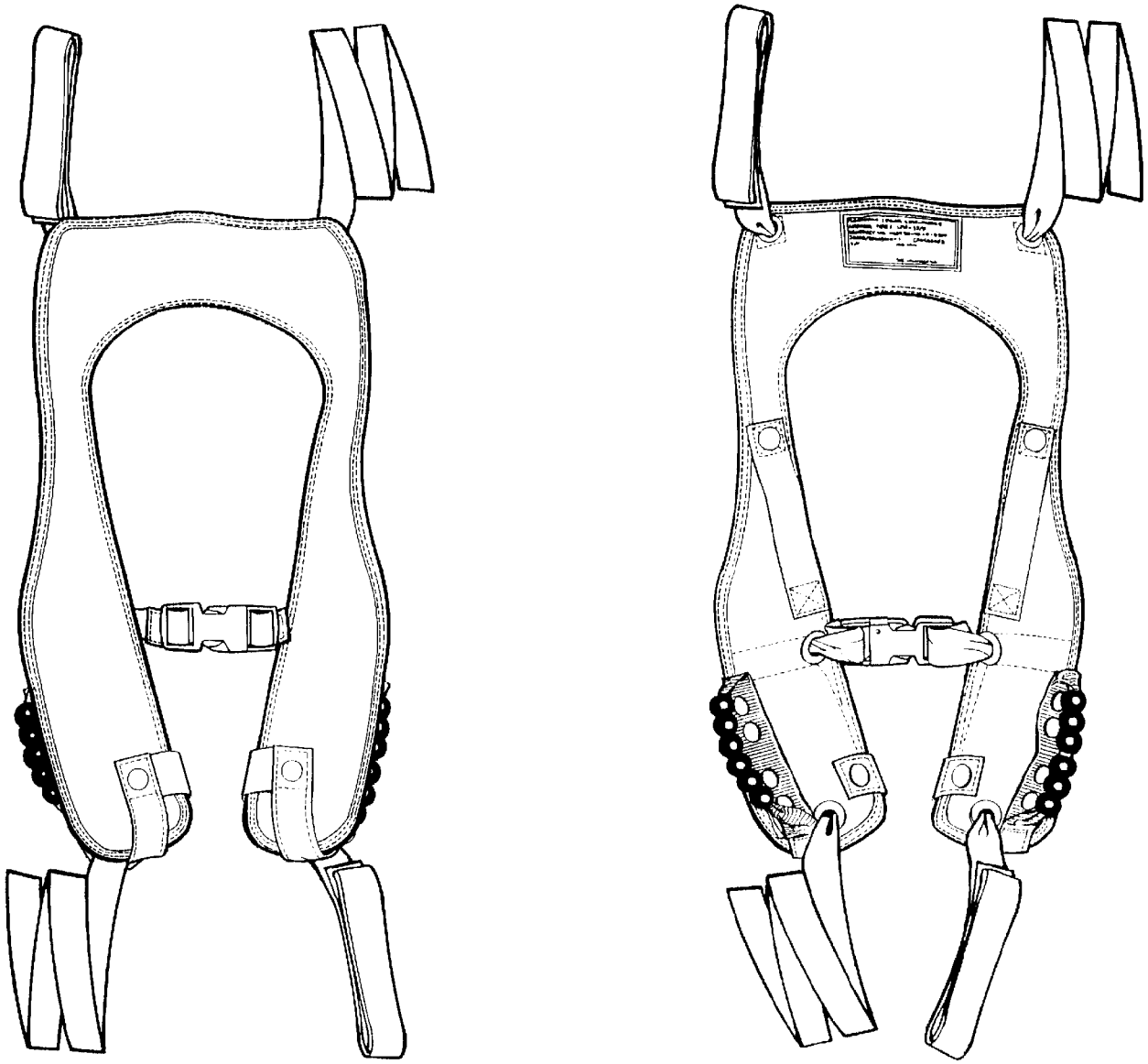

Figure 8-1. LPU-37/P, Life Preserver, Low Profile Floatation Collar (LPFC)

NOTE

The exterior cover must be manually opened prior to attempting to inflate the bladders using the oral inflation tubes.

Section 8-2. Modifications

8-11. GENERAL.

8-12. There are no modifications authorized on the LPU-37/P.

Table 8-1. LPU-37/P Directives

Description of Modification	Application	Modification Code
None		

Section 8-3. Maintenance

8-13. GENERAL.

8-14. This section contains information on LPU-37/P inspection, testing, cleaning, servicing, packing, and repair/replacement. Refer to table 8-2 for listing of repair/replacement actions.

8-15. INSPECTION.

8-16. The inspection requirements for the LPU-37/P Life Preserver shall include Preflight, 360-Day Special, and Place-In-Service inspections.

8-17. The Preflight Inspection shall be performed prior to each flight by the aircrewmember to whom the life preserver is assigned.

8-18. The 360-Day Special Inspection shall be performed once every 360 days after the LPU-37/P has been placed in service. The 360-Day Special Inspection shall be performed by qualified personnel at the Intermediate level of maintenance. The Functional Test shall be performed during every 360-Day Special Inspection.

8-19. The Place-In-Service Inspection shall be performed on all life preservers prior to placing in service. The Place-In-Service Inspection shall be performed by qualified personnel at the intermediate level of maintenance. If inspection indicates required repair is beyond the capability of maintenance, complete appropriate forms in accordance with OPNAVINST 4790.2 Series and forward entire assembly to supply.

8-20. QUALITY ASSURANCE. The more critical procedures in this chapter are underlined to designate steps which require a Quality Assurance Inspection to assure performance of specific requirements. After the underlined step is performed by the Aircrew Survival Equipmentman, the procedure shall be verified before the next step is performed. This verification shall be performed by a Collateral Duty Inspector or Quality Assurance Representative (CDI, CDQAR, or QAR). Under no circumstances shall an Aircrew Survival Equipmentman perform his own Quality Assurance Inspection.

8-21. PREFLIGHT INSPECTION. The Preflight Inspection shall be performed at the organizational level prior to each flight by the aircrewmember to whom the life preserver is assigned as follows:

WARNING

Ensure that the beaded inflation handles are readily accessible. Beaded inflation handles shall be secured with six snap fasteners.

CAUTION

Do not open any sealed or safety-tied portion of the life preserver for Preflight Inspection.

1. Inspect exterior cover for cuts, tears, deterioration, abrasions, stains, cleanliness, security of stitching, and other signs of damage.

2. Inspect snaps for secure attachment, corrosion, and ease of operation.

3. Inspect zipper closing for security throughout its length.

4. Inspect plastic buckles and buckle straps for proper operation and security. Buckles may be replaced without removing the life preserver from service.

5. Inspect identification and warning labels for secure attachment.

6. If any discrepancy is noted, the life preserver shall be returned to the Aviator's Equipment Branch for determination of maintenance action and disposition.

8-22. 360-DAY SPECIAL INSPECTION. The 360-Day Special Inspection consists of the following:

1. Preflight Inspection (LPU-37/P) (paragraph 8-21).

2. Inflation Shell Assembly Visual Inspection (paragraph 8-24).

3. Exterior Cover Assembly Visual Inspection (paragraph 8-25).

4. Functional Test every 360-Day Special Inspection cycle (paragraph 8-34).

5. Deflation (paragraph 8-37).

6. Leakage Test (paragraph 8-35).

7. Markings Inspection (paragraph 8-26).

8. Manual Inflation Device Inspection (paragraph 8-28).

9. Installation of CO_2 Cylinders (paragraph 8-32).

10. Bladder Visual Inspection (paragraph 8-27).

11. Packing Procedures (paragraph 8-39).

12. Beaded Inflation Handle Pull Test (paragraph 8-36).

Table 8-2. LPU-37/P Common Repairs and Fabrications

Description	Paragraph Number
Replacement of pull the dot snap fasteners, attachment strap and exterior cover	8-30
Replacement of snap fasteners, beaded handle assembly and exterior cover	8–31

8-23. PLACE-IN-SERVICE INSPECTION. The Place-In-Service Inspection shall consist of the following tasks.

1. 360-Day Special Inspection (paragraph 8-22).

2. Functional Test (paragraph 8-32).

3. Bladder Visual Inspection (paragraph 8-27).

4. Inflation Shell Assembly Visual Inspection (paragraph 8-24).

5. Exterior Cover Assembly Visual Inspection (paragraph 8-25).

8-24. INFLATION SHELL ASSEMBLY VISUAL INSPECTION. To inspect the inflation shell assembly, proceed as follows:

1. Inspect fabric for cuts, tears, deterioration, abrasion, stains, and general cleanliness. If required, clean in accordance with paragraph 8-39.

2. Inspect seams, stitching, and reinforcement patches for condition and security.

3. Inspect zipper for security, stitching, and proper operation.

4. Inspect straps and loops for security and wear.

5. Inspect inflator covers for condition and security of hook and pile tape. Replace as required.

6. Inspect buckle for condition and proper operation. Replace if required.

7. If any component except the buckle or inflation covers is unserviceable, replace entire inflation shell assembly.

8-25. EXTERIOR COVER ASSEMBLY VISUAL INSPECTION. To inspect the exterior cover, proceed as follows:

1. Inspect fabric for cuts, tears, deterioration, abrasion, stains, and general cleanliness. If required, clean in accordance with paragraph 8-39.

2. Inspect seams and stitching for condition and security.

3. Inspect zipper for security, stitching, and proper operation.

4. Inspect snaps for security of attachment, corrosion, damage, wear, and ease of operation.

5. Inspect uni-directional snap fastener assemblies for presence, security of attachment, proper orientation, ease of operation, corrosion, and wear.

NOTE

All uni-directional snap fasteners shall be installed with the dot on the button of the snap fastener socket positioned on the side of the snap fastener to which lift must be applied to disengage the socket from the snap fastener stud.

The two snap fasteners on the exterior cover shall be installed with the dot on each socket button positioned away from the sewn strap attachment.

6. Inspect grommets for security, corrosion, damage, and wear.

7. Inspect identification label for security.

8. If any component is unserviceable, replace entire exterior cover.

8-26. MARKINGS INSPECTION. To inspect and restore marking, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Ink, Marking, Laundry, Black	SPE-92 NIIN 00-161-4229
	-or-	
As Required	Ink, Drawing, Waterproof, Yellow	A-A-59291 NIIN 00-634-6583

1. Compare markings on preserver to those listed in figure 8-2.

2. Restore faded markings as close to original position as possible.

NOTE

THE 28TH IN-SERVICE MANAGEMENT PANEL MEETING FOR AVIATION LIFE SUPPORT SYSTEMS RESCINDED THE REQUIREMENT FOR THE PACKER TO SIGN THE INSPECTION RECORD PATCH ON LIFE PRESERVERS. THE REQUIREMENT FOR ALL OTHER DOCUMENTATION REMAINS UNCHANGED. THE REASON FOR THIS CHANGE IS THAT MOST HISTORY PATCHES ARE UNREADABLE AND THE PACKER'S AND INSPECTOR'S NAMES ARE DOCUMENTED ON AVIATION CREW SYSTEMS RECORDS.

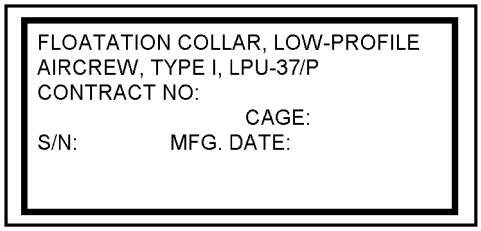

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Figure 8-2. LPU-37/P Markings

8-27. BLADDER VISUAL INSPECTION. To inspect bladders, proceed as follows:

1. Inspect bladders for cleanliness, cuts, tears, punctures, deterioration and abrasions.

2. Check all seams for security.

3. Inspect valve stems for security, cross threading, and cleanliness.

4. Inspect oral inflation valves for cracks, security, ease of operation, and corrosion.

5. If any component of the bladder is unserviceable, replace entire bladder.

8-28. INSPECTION, MANUAL INFLATION DEVICE. Inspection of the Manual Inflation Device is performed as follows:

1. Remove CO_2 cylinder from inflation device.

2. Examine inflation device and actuating lever for corrosion, security, stripped threads, CO_2 cylinder piercing pin for serviceability, and general condition.

a. If CO_2 cylinder piercing pin point is flat, rounded, or otherwise dull or damaged, the inflation device shall be replaced.

3. Check seat seal gasket for condition. Replace if necessary.

4. Operate actuating lever several times. Ensure lever moves freely and piercing pin moves properly inside valve body.

8-29. REPAIR/REPLACEMENT.

8-30. REPLACEMENT OF THE PULL THE DOT SNAP FASTENERS, EXTERIOR COVER ASSEMBLY AND ATTACHMENT STRAP. To replace pull the dot snap fasteners used to secure the attachment straps to the exterior cover, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Cap, Snap Fastener	MS27983-1 NIIN 00-891-9073
As Required	Socket, Snap Fastener	MS27983-2 NIIN 00-945-2577
As Required	Stud, Snap Fastener	MS27983-3 NIIN 00-276-4908
As Required	Eyelet, Snap Fastener	MS27983-4 NIIN 00-276-4978

1. Remove damaged fastener from cover or attachment strap, using care not to damage cover or webbing.

NOTE

Exterior cover assembly shall be replaced if structural damage occurs during fastener removal or is found after fastener removal.

2. Install new fasteners at existing location as required, ensure pull the dot is installed facing up, nearest top of collar.

8-31. REPLACEMENT OF SNAP FASTENERS, BEADED HANDLE ASSEMBLY AND EXTERIOR COVER. To replace snap fasteners used to secure the beaded handle assembly to the exterior cover assembly, proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Cap, Snap Fastener	MS27981-1B NIIN 00-276-4954
As Required	Socket, Snap Fastener	MS27981-3B NIIN 00-276-4966
As Required	Stud, Snap Fastener	MS27981-4B NIIN 00-901-9660
As Required	Post, Snap Fastener	MS27981-5B NIIN 00-250-6858

1. Remove damaged fastener from cover or beaded handle assembly, using care not to damage cover or handle webbing.

NOTE

Exterior cover or beaded handle assembly shall be replaced if structural damage occurs during fastener removal or if found after fastener removal.

2. Install new fasteners at existing location as required.

8-32. INSTALLATION OF CO_2 CYLINDERS. To install CO_2 cylinders, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Scale (Gram)	A-A-52021-1 NIIN 00-514-4117 or equivalent
1	Die, Cylinder Thread Chaser	1842-008-01 (CAGE 03688) NIIN 00-069-4040

Materials Required

Quantity	Description	Reference Number
As Required	Cylinder, CO_2 Type III, 35-Gram	MIL-C-25369C
As Required	Seat Seal	849AML NIIN 01-291-3593

1. Weigh a charged CO_2 cylinder and compare the minimum stamped weight with the scale weight. Discard and replace cylinder if scale weight is 2 grams less than minimum stamped weight.

2. To assure a firm cylinder seat, conduct a cylinder thread count. The threaded portion of the cylinder neck shall contain a minimum of seven full threads to assure a firm cylinder seat within inflator body. Any cylinder with less than seven full threads shall be discarded (figure 8-3).

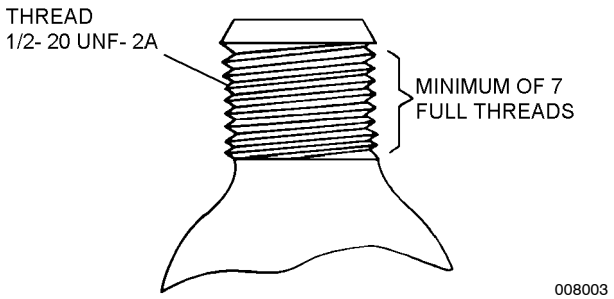
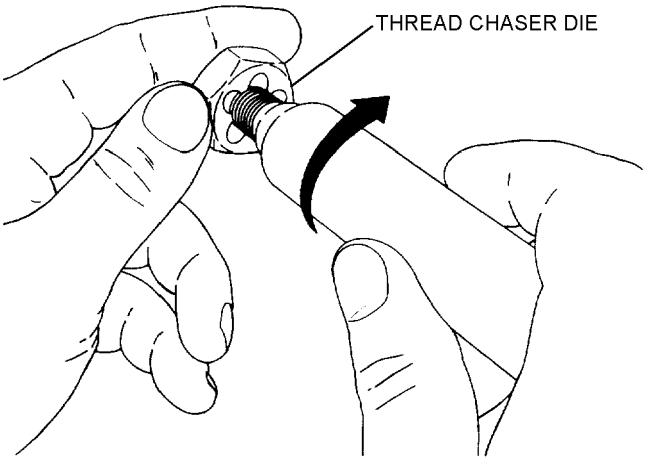


Figure 8-3. Cylinder Thread Count

CAUTION

Steel threads on CO_2 cylinder can cause damage to aluminum threads on inflator if cylinder is not carefully threaded. If binding occurs during installation of cylinder, use thread chaser die on cylinder thread to cut free excessive plating. Reinstall cylinder. If binding still occurs, replace cylinder.

3. Using the cylinder thread chaser die, turn the die to the full extent of the threads on the CO_2 cylinder to cut free any excessive plating covering the threads.



Step 3 - Para 8-32

NOTE

Inspect condition of seat seal gasket and replace as necessary. After each functional check, the seat seal gasket shall be replaced.

4. Remove old seat seal gasket if damaged or if a functional test has been performed.

5. Install new seat seal gasket and carefully thread CO_2 cylinder into inflator body hand tight.

6. Check for secure cylinder fit.

8-33. TESTING.

8-34. FUNCTIONAL TEST. The Functional Test shall be performed prior to placing LPU-37/P in service, every 360-Day Special Inspection, and when a bladder is replaced. The Functional Test is performed as follows:

CAUTION

Ensure work area surrounding preserver is free of foreign objects.

1. Perform beaded handle pull test in accordance with paragraph 8-36.

2. Open exterior cover. Carefully separate zipper by hand, starting at the zipper opening on either side of external cover.

3. Unfold inflation shell assembly.

CAUTION

After each functional test the spent CO_2 cylinders shall be replaced and the CO_2 cylinder piercing pins shall be inspected for serviceability.

4. Actuate inflation assemblies.

5. The life preserver shall fully inflate to design shape, without evidence of restriction, in less than 30 seconds.

6. If the life preserver does not properly inflate, determine cause. Ensure stem and valve are clean and free of foreign matter.

7. If correction is made, the life preserver shall be functionally tested again.

8. Deflate life preserver in accordance with paragraph 8-37 to remove all CO_2.

8-35. LEAKAGE TEST. The LPU-37/P shall be subjected to a Leakage Test each 360-Day Special Inspection. To perform a Leakage Test, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Test Fixture (or equivalent)	No Number

CAUTION

Ensure test area is free of foreign objects.

1. Ensure all carbon dioxide has been removed from any preserver which has been functionally tested.

2. Remove LH and RH inflator assemblies and discard gaskets.

3. Unzip inflation shell assembly and remove top and bottom bladders from shell.

CAUTION

If 3-way valve is not used, measuring device valve must be closed when air feed valve is open. Damage may occur to oral inflation valve if air supply pressure entering the life preserver exceeds 10 psi during this test.

NOTE

Refer to figure 8-4, Leakage Test Fixture Schematic. If test fixture meeting requirements indicated is not available, one must be fabricated in order to perform required leakage test.

If a suitable air source is not available, water-pumped nitrogen (BB-N-411) may be substituted.

4. Unlock oral inflation valve and connect to test fixture. Rotate valve to air supply position and inflate bladder. Alternately position valve between measuring device, vent, and air supply until proper pressure of 3.25 psig is attained.

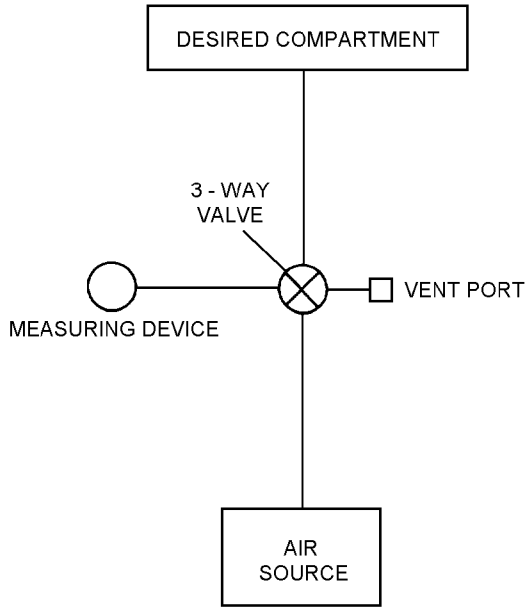


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Figure 8-4. Leakage Test Fixture Schematic

UNCORRECTED TEST READING 1.70 PSI

	TEMP.	BARO.
START	75° F	29.90 IN. Hg
END	70° F	29.70 IN. Hg
DIFFERENCE	- 5° F	-0.20
CORRECTION	+0.155	-0.098

TEMP. CORRECTION	+ 0.155
+ BARO. CORRECTION	- 0.098
CORRECTION	+ 0.057

UNCORRECTED READING	1.700 PSI
+ CORRECTION	+ 0.057
CORRECTED READING	1.757 PSI

EXAMPLE

008005

Figure 8-5. Temperature and Barometric Pressure Test Record

5. Securely shut off the air supply. Then after allowing a minimum of 15 minutes for pressure to stabilize, the pressures shall be readjusted, as necessary, to the leakage test pressures. After ensuring proper test pressures, record time.

6. Disconnect air supply and check for leaks. Ensure all valves are closed.

7. Record temperature and barometric pressure (figure 8-5).

8. After a minimum of 1 hour after completing step 5, record test pressure of both bladders. Test pressure of each bladder shall not decrease to less than 2.50 psig for a life preserver bladder, from a maximum test pressure of 3.25 psig.

9. Record temperature and barometric pressure (figure 8-5). Correct the test pressure for any changes in temperature and barometric pressure using tables 8-3 and 8-4.

CAUTION

Do not submerge life preservers in water to check for leaks.

10. If pressure of bladder is below 2.50 psig, inflate to correct leakage test pressure and coat bladder with a soap solution to determine if a leak exists. If a leak exists, replace bladder. If no leak is found, check test fixture.

Table 8-3. Temperature Conversion Chart

Temperature Difference (°F)	Correction (psi)
1	0.031
2	0.062
3	0.093
4	0.124
5	0.155
6	0.186
7	0.217
8	0.248
9	0.279
10	0.310
Rise in temperature: subtract from gage reading. Fall in temperature: add to gage reading.	

Table 8-4. Barometric Pressure Conversion Chart

Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)	Press. Diff. (inHG)	Corr. (psi)
0.01	0.005	0.16	0.078	0.31	0.152	0.46	0.225	0.61	0.299
0.02	0.010	0.17	0.083	0.32	0.157	0.47	0.230	0.62	0.304
0.03	0.015	0.18	0.088	0.33	0.162	0.48	0.235	0.63	0.309
0.04	0.020	0.19	0.093	0.34	0.167	0.49	0.240	0.64	0.314
0.05	0.025	0.20	0.098	0.35	0.172	0.50	0.245	0.65	0.319
0.06	0.030	0.21	0.103	0.36	0.176	0.51	0.250	0.66	0.323
0.07	0.035	0.22	0.108	0.37	0.181	0.52	0.254	0.67	0.328
0.08	0.040	0.23	0.113	0.38	0.186	0.53	0.260	0.68	0.333
0.09	0.045	0.24	0.118	0.39	0.191	0.54	0.265	0.69	0.338
0.10	0.049	0.25	0.123	0.40	0.196	0.55	0.270	0.70	0.343
0.11	0.054	0.26	0.127	0.41	0.201	0.56	0.275	0.71	0.348
0.12	0.060	0.27	0.132	0.42	0.206	0.57	0.279	0.72	0.353
0.13	0.064	0.28	0.137	0.43	0.211	0.58	0.284	0.73	0.358
0.14	0.069	0.29	0.142	0.44	0.216	0.59	0.289	0.74	0.363
0.15	0.073	0.30	0.147	0.45	0.221	0.60	0.294	0.75	0.368

Rise in pressure: add to gage reading.
Fall in pressure: subtract from gage reading.

11. Deflate bladder in accordance with paragraph 8-37.

12. Reassemble preserver and pack in accordance paragraph 8-40.

13. Records Updating. Make necessary entries on appropriate form in accordance with OPNAVINST 4790.2 Series.

8-36. BEADED INFLATION HANDLE PULL TEST. To perform the beaded inflation handle pull test, proceed as follows:

1. Manually release beaded handles.

2. If snap fasteners do not release, inspect male and female snap fasteners for damage. Replace entire beaded inflation handle if required and repeat step 1. Replace exterior cover if required.

3. Attach gauge to webbing between third and fourth bead on inflation handle.

4. Hold inflation lanyard securely against exterior cover to ensure life preserver actuating lever will not be pulled.

5. Add a 25-pound force to check the security of the beaded handle attachment to the inflation lanyard.

6. Examine lanyard for frays, ruptures, thin spots, and security. If unsatisfactory, replace entire beaded inflation handle.

8-37. DEFLATION.

8-38. To deflate the life preserver, proceed as follows:

Support Equipment Required

Quantity	Description	Reference Number
1	Pump, Rotary Vacuum	NIIN 00-052-5015 or equivalent
As Required	Hose, 3/8- or 1/2-inch inside diameter, Rubber	—

1. Lay bladders/inflation shell assembly on a flat surface. Smooth bladder/inflation shell assembly toward oral inflation tube.

CAUTION

Ensure all air is removed from bladder to prevent possible expansion of trapped air with increasing altitude and for ease of packing.

2. Apply a vacuum to remove all air through oral inflation tube. (Bladder should be wrinkled/puckered around oral inflation tube when all air has been removed.)

3. Turn oral inflation valve locking nut to lock position to ensure no air returns to the bladder.

8-39. PACKING PROCEDURES.

NOTE

The requirement for the packer to sign the Inspection Record Patch on the life preserver was rescinded by the 28th In-Service Management Panel. Justification: Most inspection record history patches become unreadable and packer's and inspector's names are documented on Aviation Crew Systems records. All other documentation requirements remain unchanged.

8-40. Pack the LPU-37/P life preserver as follows:

Support Equipment Required

Quantity	Description	Reference Number
6	Spring Clamps (packing aids)	P/N 3201 NIIN 01-470-1447
4	Bladder Assembly Keeper (packing aids)	P/N 101202 NIIN 01-469-9567

Support Equipment Required (Continued)

Quantity	Description	Reference Number
1	Zipper Slider (packing aid)	P/N 101201 NIIN 01-467-6537
1	Pump, Rotary Vacuum	NIIN 00-052-5015 or equivalent
As Required	Hose, 3/8 or 1/2 inch inside diameter, rubber	—
1	Torque Wrench, In-lb	P/N 6106 or equivalent

Notes 1. The plastic tips of the Spring Clamps (packing aids) may become loose and become a FOD hazard. To correct and prevent this condition, remove plastic tips from clamp, coat metal tip of clamp with adhesive (MIL-A-5540A) and reinstall plastic tips while adhesive is still tacky.

Materials Required

Quantity	Description	Reference Number
As Required	Thread, Nylon, Size E	P/N V-T-295E NIIN 00-204-3884
2	Gasket Kit	P/N 105AS100-6
1	Needle	—

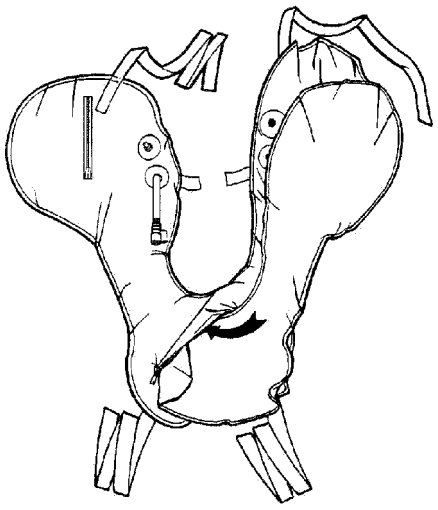
NOTE

Reference to LH and RH refers to wears left hand and right hand orientation.

1. Ensure life preserver has received Place-in-Service inspection in accordance with paragraph 8-23.

2. Remove air from inner inflatable assembly (110230-1) and outer inflatable assembly (110240-1). Lay each assembly on a flat surface. Smooth bladder toward oral inflation tube. Apply a vacuum to remove all air through oral inflation tube. Turn locking nut to lock position to ensure that no air returns to inflation assembly.

3. Place inner inflatable assembly (with oral inflator on LH side) into inflation shell assembly (110221-1) through the zipper openings. Insert valve stem and oral inflation tube through respective holes in inflation shell assembly. Work wrinkles out until bladder is smooth and flat.



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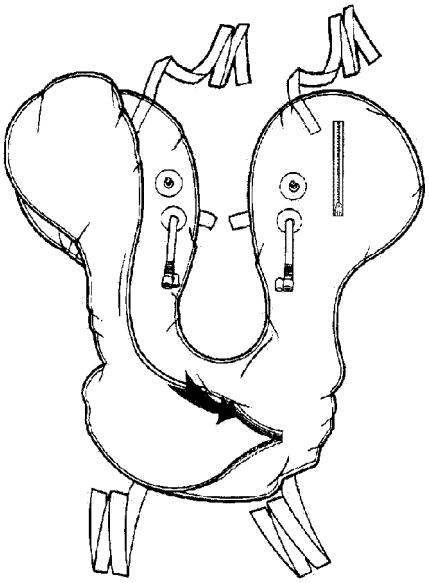
Step 3 - Para 8-40

4. Place outer inflation shell assembly (with oral inflator on RH side into inflation shell assembly in the same manner as step 3.



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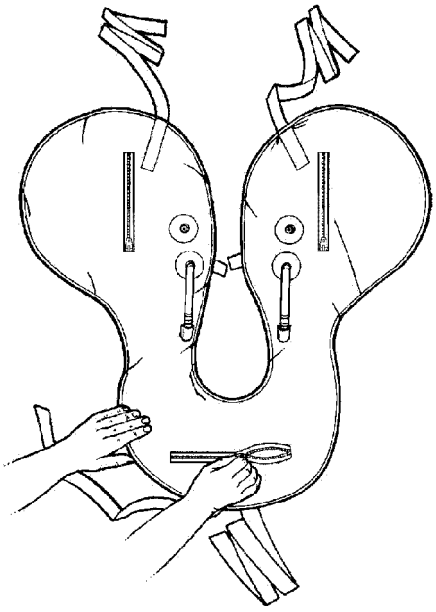
Step 4 - Para 8-40

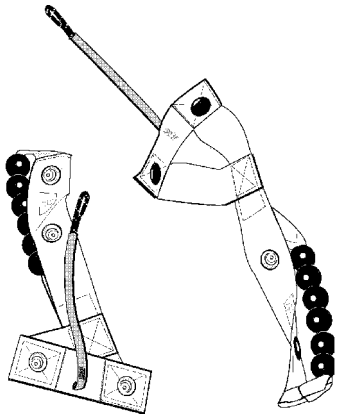
5. Zip the inflation shell assembly closed (3 places).



8p40s5

Step 5 - Para 8-40

6. Attach the black portion of the inflation lanyard on the LH beaded handle (103251-3) to the manual inflation device using a larks head knot. Repeat for the RH beaded handle (103251-4).



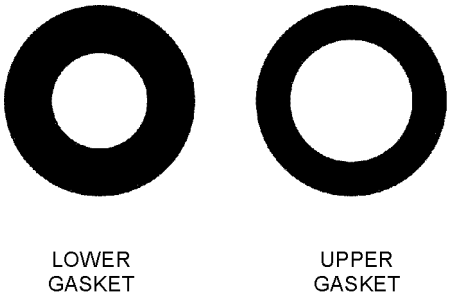
8p40s6

Step 6 - Para 8-40

WARNING

Ensure gaskets are properly positioned. The upper gasket has a larger internal diameter than the lower gasket.

7. Install new gaskets from gasket kit by placing lower gasket (8492AM) on the valve stem first.



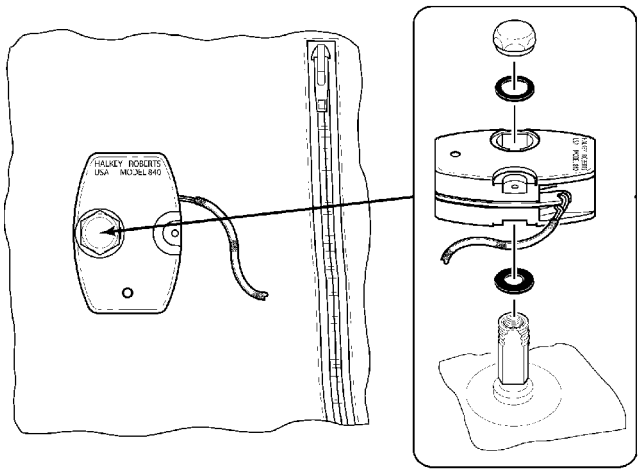
8p40s7

Step 7 - Para 8-40

WARNING

Inflator lever shall face outboard. Activation arm will pull downward.

8. Carefully install manual inflation device with LH beaded handle onto the LH valve stem. Carefully install manual inflation device with RH beaded handle onto the RH valve stem.

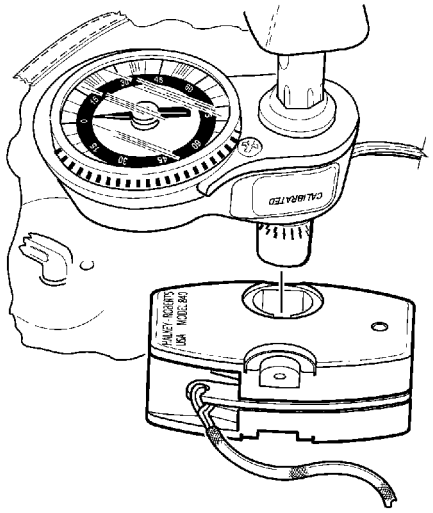


8p40s8

Step 8 - Para 8-40

9. Install upper gasket onto valve stem.

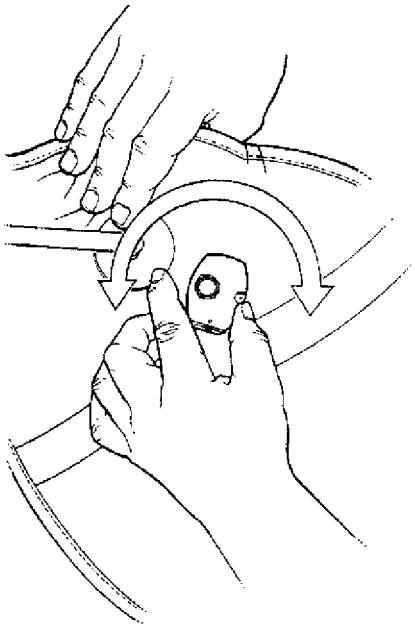
10. Tighten cap nut on valve stem and torque to a value of 15 ± 1 in-lb.



8p40s10

Step 10 - Para 8-40

11. Grasp the 2-inch diameter reinforcement patch on the inflation shell assembly around the inflator in one hand and the manual inflation device in the other hand. Holding the inflation shell assembly firmly, rotate the manual inflation device clockwise and counterclockwise checking for trapped material. If inflation shell assembly is binding, remove cap nut, manual inflation device, and both upper and lower gaskets, discard gaskets and repeat steps 7 through 11.



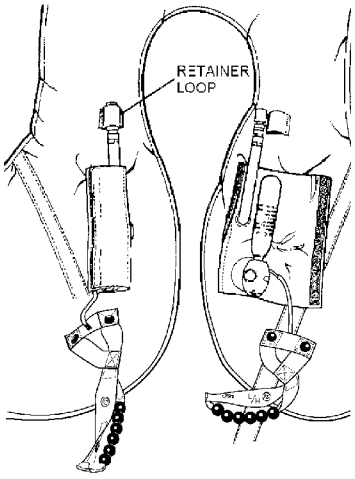
8p40s11

Step 11 - Para 8-40

NOTE

Manual inflation device comes with seat seal gasket installed for CO_2 cylinder installation.

12. Ensure seat seal gasket is in place. Install both LH (102228-2) and RH (102228-1) inflation covers assemblies behind and around inflators. Insert oral inflation tubes through holes in upper portion of inflation cover assemblies and into retaining loops attached to inflation shell assembly. Ensure CO_2 cylinders have been inspected in accordance with paragraph 8-23. Install both CO_2 cylinders, MIL-C-25369C, Type III, hand tight. Check LH and RH larks head knots for security and ensure proper routing of lanyards, under (behind) manual inflation device. Close inflation covers assemblies and secure with hook and pile fastener.



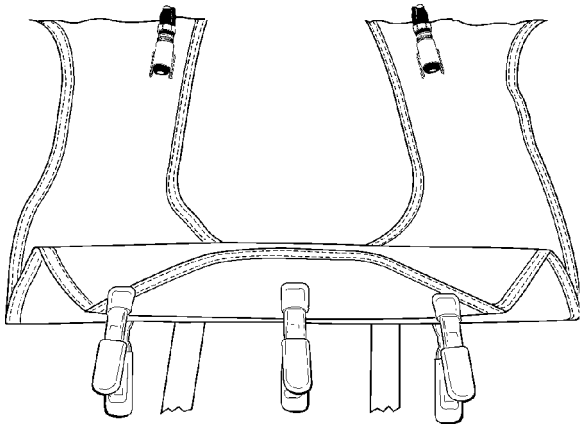
8p40s12

Step 12 - Para 8-40

CAUTION

Avoid placing spring clamps directly onto zipper closure of the inflation shell assembly. Spring clamps placed on zipper closures may damage bladders.

13. Place top of inflation shell assembly towards packer. Just below top zipper, make an approximately 3-inch inboard fold. Make additional accordion folds until all the shell assembly is lying flat and folded. This should be a 3 or 4 fold of 3 inches laying flat. Clamp as necessary.

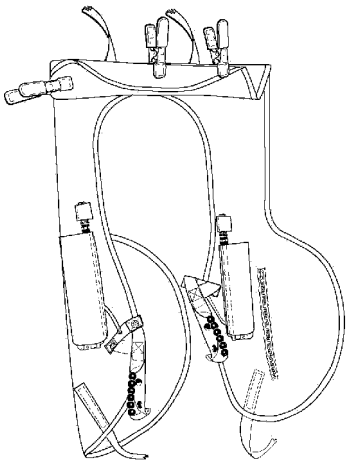


8p40s13

Step 13 - Para 8-40

14. Rotate assembly so that the right-hand lobe is toward packer.

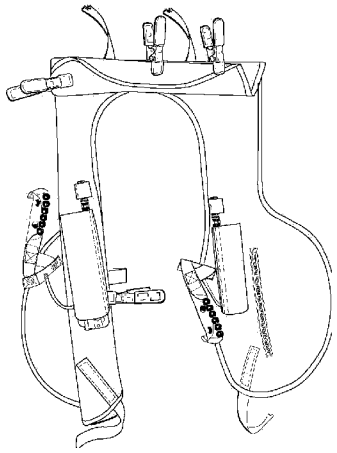
15. Fold the RH lobe under, in line with the outboard side of the inflation shell assembly. Clamp as necessary.



8p40s15

Step 15 - Para 8-40

16. Fold top portion of bladder lobe under inflation shell assembly and clamp. Ensure chest strap is accessible.

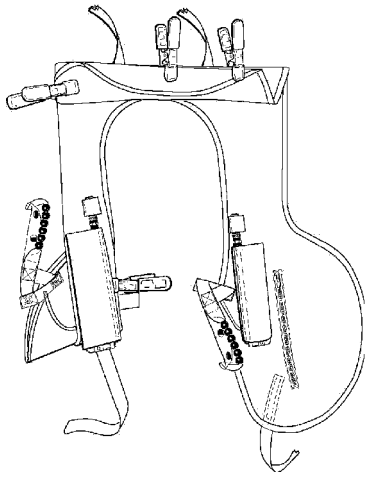


8p40s16

Step 16 - Para 8-40

17. Fold RH lobe back under inflation shell assembly approximately 2 1/2 inches or the width of the inflation shell assembly.

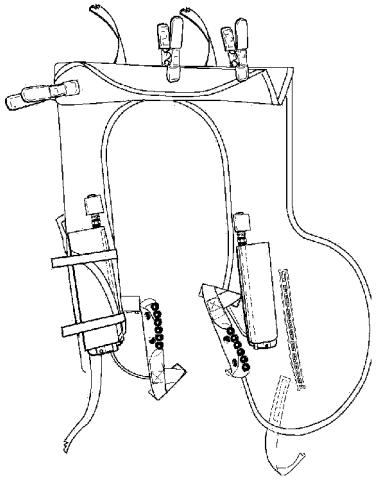
18. Fold RH lobe under inflation shell assembly even with end of inflation shell assembly. Clamp.



8p40s18

Step 18 - Para 8-40

19. Fold remaining bladder assembly over inflation assembly, roll excess under even with edge of inflator assembly, and secure with hook and pile packing aids as needed.



8p40s19

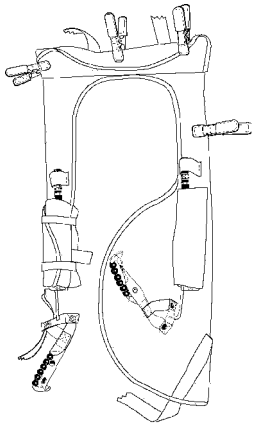
Step 19 - Para 8-40

NOTE

When placing packing aid (hook and pile) around folded inflation shell assembly, ensure that the RH lower strap is retained by packing aid and facing out the bottom.

20. Rotate assembly so that the left-hand lobe is toward packer.

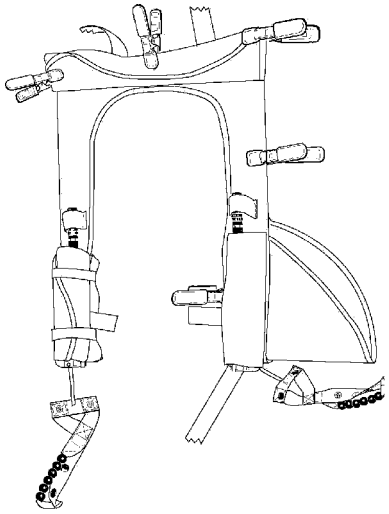
21. Fold the LH lobe under, in line with the outboard side of the inflation shell assembly. Clamp as necessary.



8p40s21

Step 21 - Para 8-40

22. Fold top portion of LH lobe under inflation shell assembly and clamp. Ensure chest strap is accessible.



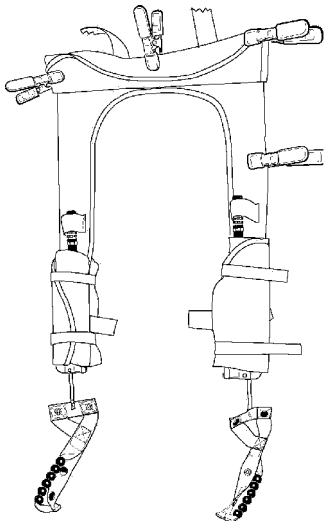
8p40s22

Step 22 - Para 8-40

23. Fold LH lobe back under inflation shell assembly. Approximately 2 1/2 inches or the width of the inflation shell assembly.

24. Fold LH lobe under inflation shell assembly even with inflation assembly. Clamp.

25. Fold remaining bladder assembly over inflation shell assembly, roll excess under even with edge of inflator assembly, and secure with hook and pile packing aids as needed.



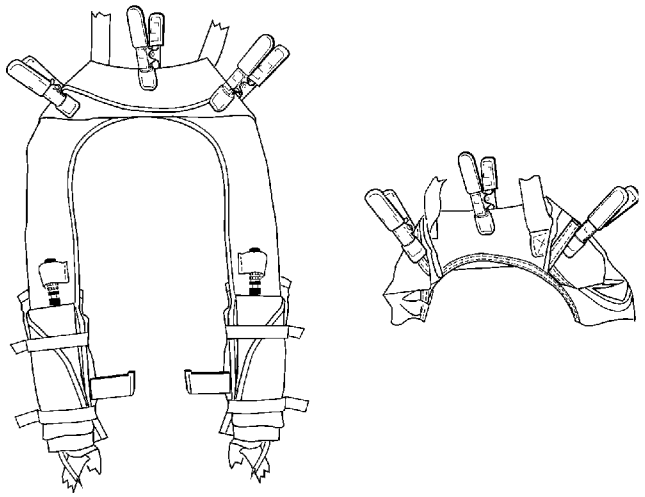
8p40s25

Step 25 - Para 8-40

NOTE

When placing packing aid (hook and pile) around folded inflation shell assembly, ensure that the LH lower strap is retained by packing aid and facing out the bottom.

26. Fold top inflation shell corners under to form a 45-degree angle on both sides of inner shell assembly. Clamp as required.

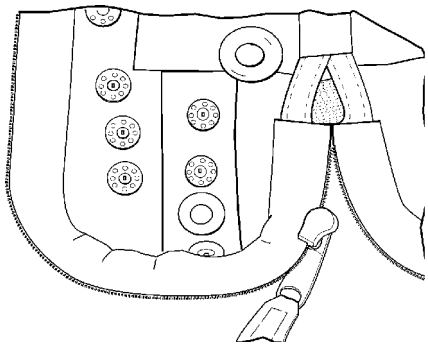


8p40s26

Step 26 - Para 8-40

27. Ensure that all folds are as previously directed.

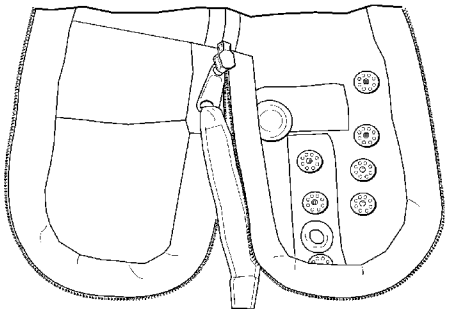
28. Attach zipper slider, flat opening first, on the exterior cover assembly (111210-1), starting on the RH lower bottom grommet side. Attach the slider to bottom side of the zipper chain. The zipper slider pull-tab will be on the outside of the exterior cover.



8p40s28

Step 28 - Para 8-40

29. Bring zipper slider all the way around to the LH side, top section of the exterior cover assembly.

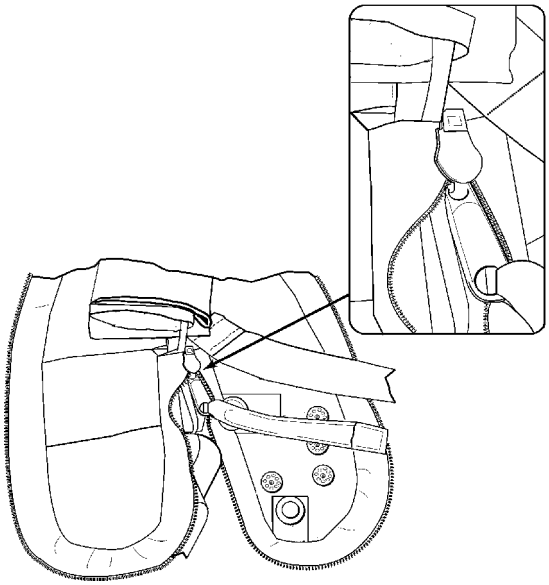


8p40s29

Step 29 - Para 8-40

30. Place folded inflation shell assembly into the exterior cover assembly with the LH lobe above the zipper slider.

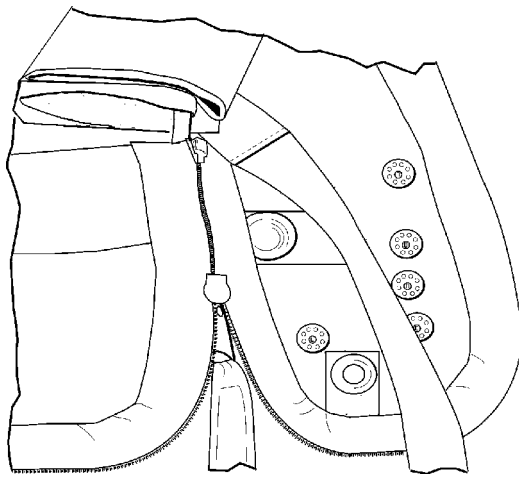
31. Position the red inflation lanyard to pass between the zipper halves. Connect zipper half to zipper slider.



8p40s31

Step 31 - Para 8-40

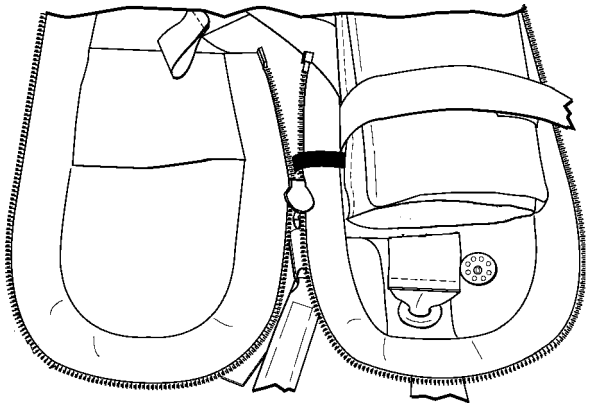
32. Pull slider down to where top of slider is between first two snaps.



8p40s32

Step 32 - Para 8-40

33. Separate the ends of the zipper halves down to the zipper slider.



8p40s33

Step 33 - Para 8-40

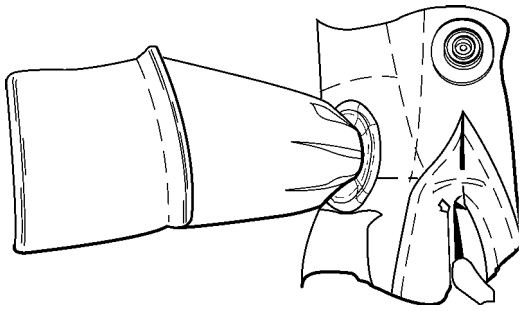
34. Route red inflation lanyard under inflator and between zipper halves.

WARNING

Failure to separate the zipper halves and proper routing of the red inflation lanyard as directed in steps 33 and 34 may result in a life preserver malfunction.

35. Route lower attachment strap through lower grommet and pull inflation assembly to end of exterior cover.

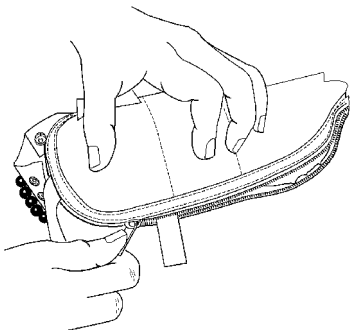
36. Put LH chest strap through chest strap grommet. Put upper LH back strap through grommet. Put upper RH back strap through grommet. Put RH chest strap through chest strap grommet. Put RH lower strap through lower grommet.



8p40s36

Step 36 - Para 8-40

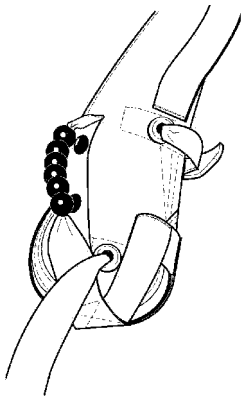
37. Close container assembly and pull slider assembly around outboard edge of the outer shell assembly. Close exterior cover carefully. Do not force zipper slider.



8p40s37

Step 37 - Para 8-40

38. Turn life preserver over to attach LH beaded handle. Attach snap above lanyard to exterior cover. Secure snap at 90-degree elbow of webbing to exterior cover and snap in place. Attach beaded handle snaps to exterior cover.



8p40s38

Step 38 - Para 8-40

39. Pack folded inner shell assembly into exterior cover, fold inner shell if necessary to fit into exterior cover. Continue removing packing aids as you progress.

40. Approaching the RH lobe, stuff/force the folded inner shell towards the top of the container to give more room for the zipper slider as it rounds the end of the lobe. Continue closing the container and remove packing aids.

41. Ensure red inflation lanyard is routed under inflator assembly.

42. Check for zipper separation before removal of zipper slider. If separation is found, un-zip slider past point of separation, re-clamp as needed, and re-close exterior cover.

43. Remover zipper slider and retain for tool inventory.

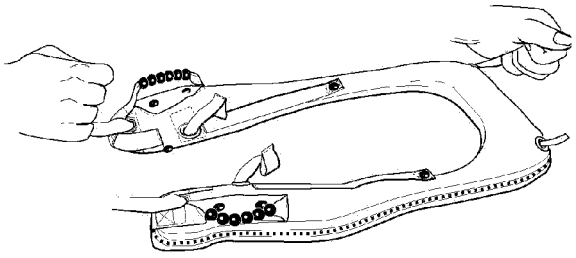
44. Turn life preserver over to attach RH beaded handle to the exterior cover. Attach snap above lanyard to exterior cover. Attach snap above lanyard to exterior cover. Secure snap at 90-degree elbow of webbing to exterior cover and snap in place. Attach beaded handle snaps to exterior cover.

NOTE

Beaded handle must not trap lower attachment strap leading from grommet on back of exterior cover. Lower strap must be able to fall free from grommet.

45. Insert the two elastic straps through the 3/4-inch webbing loop and snap in place.

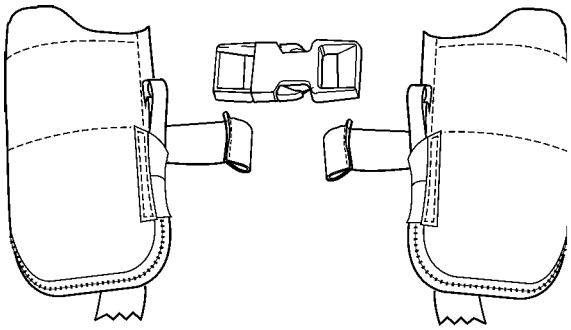
46. Grasp ends of the upper and lower LH strap and pull until internal stops are tight against grommets. Repeat for RH side.



8p40s46

Step 46 - Para 8-40

47. Turn life preserver over with front side up.



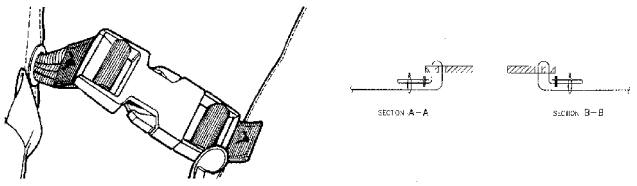
8p40s47

Step 47 - Para 8-40

NOTE

Use only buckle P/N 101-1100-5614. Do not substitute.

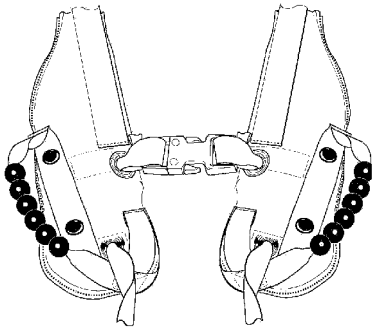
48. Weave LH buckle strap through LH (male) buckle half as shown. Route webbing inboard to outboard. Weave the RH buckle strap through RH (female) buckle half in the same manner as the LH side. Connect buckle halves together and pull tight. Tack LH and RH buckle webbing through the center of both pieces of the webbing, using 3 cord thread waxed, single. Use a surgeon's knot followed by a square knot.



8p40s48

Step 48 - Para 8-40

49. Safety tie beaded handles top snap webbing, below first snap, to exterior cover, route under webbing on exterior cover, with one turn of size E thread waxed, single. Tie with a surgeon's knot followed by a square knot.



8p40s49

Step 49 - Para 8-40

WARNING

Do not tie down beaded handles.

50. Inspect the zipper edge to ensure no coil separation. If separation is found, the exterior cover must be reassembled. Inspect male and female buckle halves for proper installation.

51. Account for all tools and packing aids.

52. Document in accordance with OPNAVINST 4790.2 Series.

8-41. CLEANING AND SALTWATER DECONTAMINATION.

8-42. CLEANING. If required to clean any portion of the life preserver, remove any detachable items and proceed as follows:

Materials Required

Quantity	Description	Reference Number
As Required	Detergent, General Purpose	MIL-D-16791 NIIN 00-282-9699
As Required	Lint-free Cloth, Type II	MIL-C-85043 NIIN 00-044-9281

CAUTION

Solvents shall not be used to clean life preservers.

1. Prepare solution of detergent consisting of 1/4 to 1/2 ounce of detergent per gallon of water.

2. Apply cleaning solution to soiled area with a spray or sponge.

3. Allow solution to remain on surface for several minutes, then agitate with a soft brush or rag.

4. Rinse surface thoroughly with water, wipe with a cloth or sponge. Repeat this application until surface is free from all solution.

5. Dry life preserver with a lint-free cloth and allow to dry completely.

8-43. SALTWATER DECONTAMINATION. After every immersion in salt water, the life preserver shall be rinsed in clean fresh water as follows:

1. Rinse all components in fresh water.

2. Inflate bladder with air and allow to dry.

3. Clean all components in accordance with paragraph 8-42.

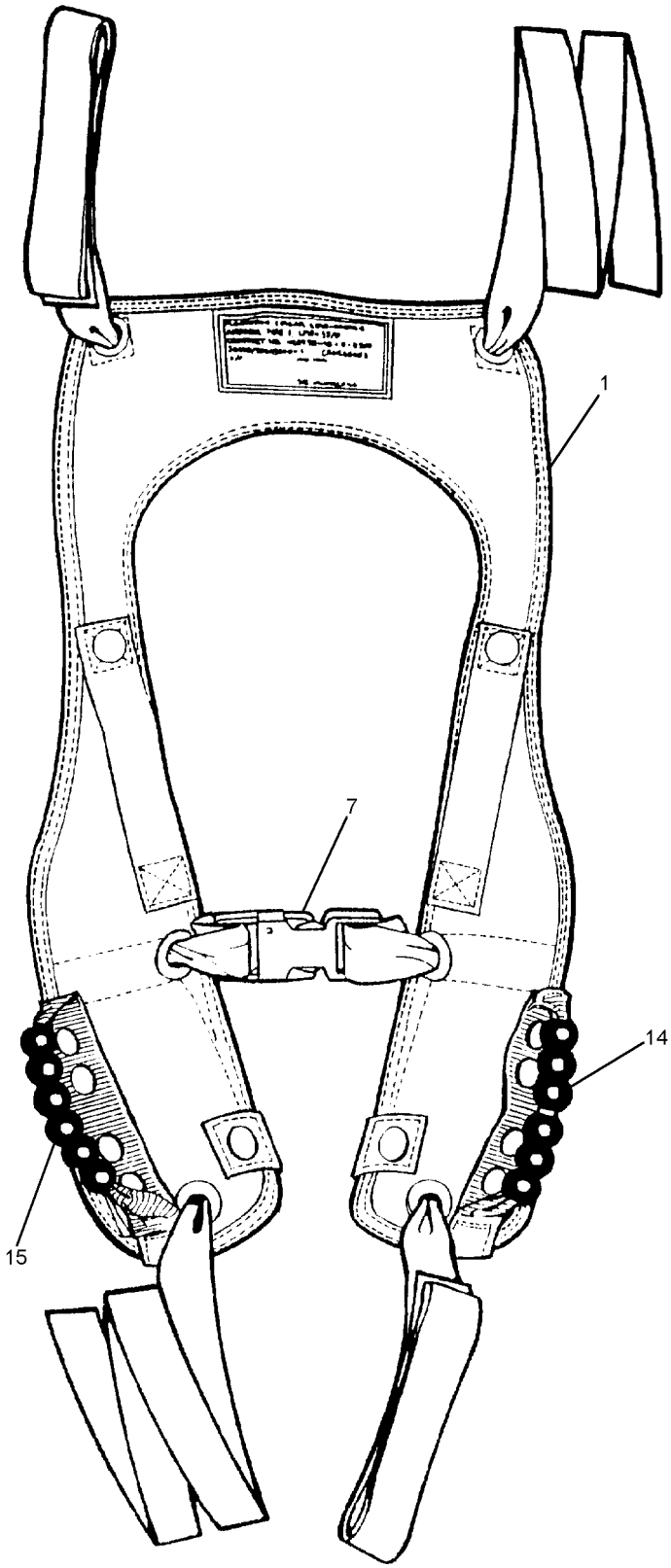
4. Perform 360-Day Special Inspection in accordance with paragraph 8-22.

Section 8-4. Illustrated Parts Breakdown (IPB)

8-44. GENERAL.

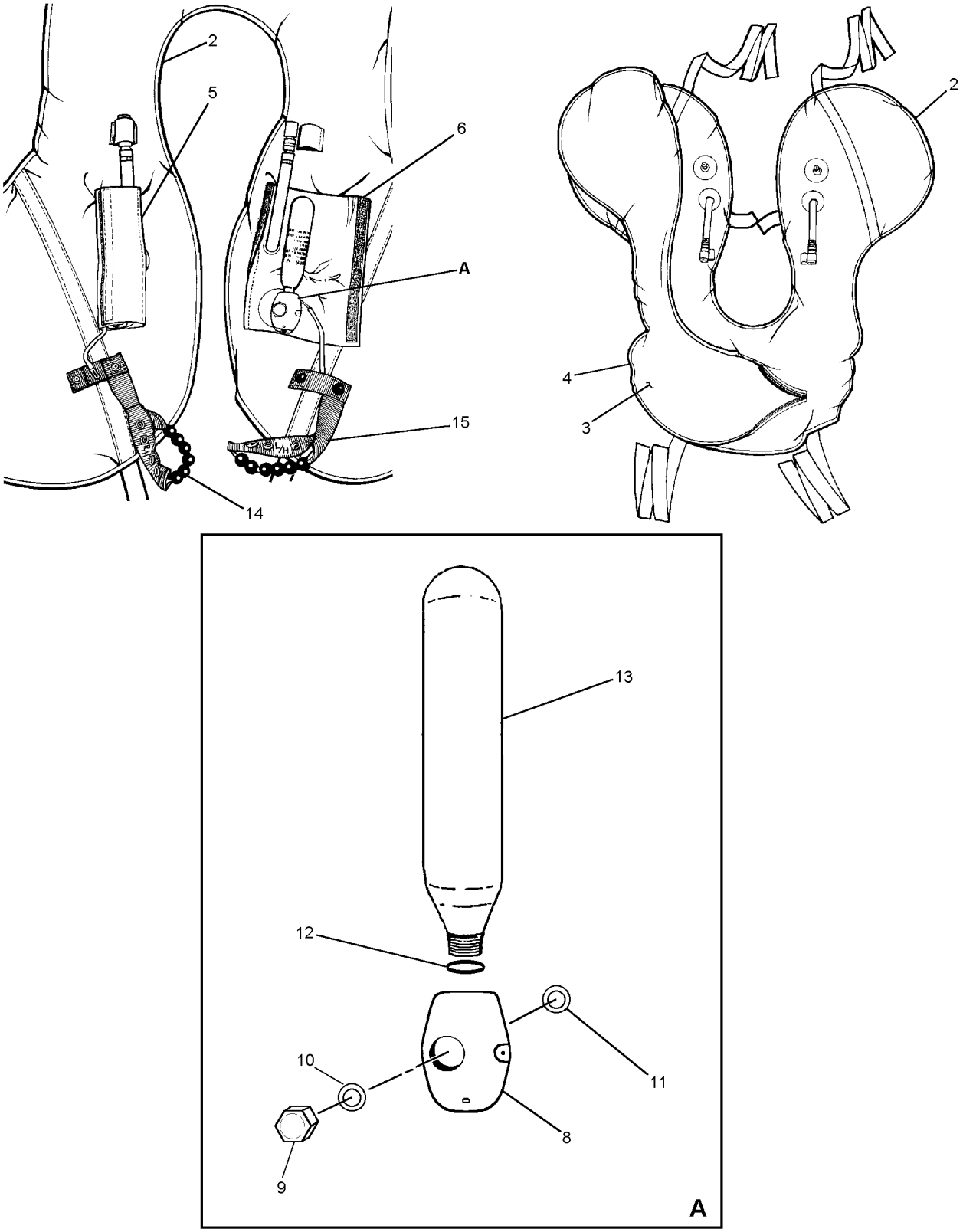
8-45. This section lists and illustrates the assemblies and detail parts of the LPU-37/P Low Profile Floatation Collar.

8-46. The Illustrated Parts Breakdown should be used during maintenance when requisitioning and identifying parts.



00800601

Figure 8-6. LPU-37/P, Low Profile Floatation Collar, Life Preserver (Sheet 1 of 2)



00800602

Figure 8-6. LPU-37/P, Low Profile Floatation Collar, Life Preserver (Sheet 2 of 2)

Figure and Index Number	Part Number	Description 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
8-6	830AS270-1	LPU-37/P, Low Profile Floatation Collar, ... Life Preserver	REF	
-1	111210-1	. EXTERIOR COVER ASSEMBLY/CASING . . . . . (CAGE 05DK2)	1	
-2	110221-1	. INFLATION SHELL ASSEMBLY . . . . . (CAGE 05DK2)	1	
-3	110230-1	. INNER (BOTTOM) INFLATABLE . . . . . ASSEMBLY (CAGE 05DK2)	1	
-4	110240-1	. OUTER (TOP) INFLATABLE ASSEMBLY . . . . . (CAGE 05DK2)	1	
-5	102228-1	. INFLATOR COVER RH (CAGE 05DK2)	1	
-6	102228-2	. INFLATOR COVER LH (CAGE 05DK2)	1	
-7	101-1100-5614	. PLASTIC BUCKLE, Male/Female (Note 3) . . . . . (CAGE 02768)	1	
-8	840AMLS	. INFLATION DEVICE, Manual . . . . . (CAGE 30003) (ATTACHING PARTS)	2	
-9	52A6600	. VALVE CAP, Inflator (CAGE 80049)	2	
-10	105AS100-3	. GASKET, Top (CAGE 30003) (Note 1)	2	
-11	8492AM	. GASKET, Bottom (CAGE 30003) (Note 1)	2	
		---*---		
-12	849AML	. . SEAT SEAL	2	
-13	MIL-C-25369C	. CO_2 CYLINDER, Type III, 35 Gram	2	
-14	103251-4	. BEADED HANDLE RH (CAGE 05DK2)	1	
-15	103251-3	. BEADED HANDLE LH (CAGE 05DK2)	1	

Notes:
1. Top and bottom gaskets are obtained from Valve Stem Kit, P/N 105AS100-6, NIIN 00-113-8290, which contains one top and one bottom gasket.
2. Packing Aids for LPU-37/P: Zipper Slide Assembly, P/N 101201 (CAGE 05DK2) Bladder Assembly Keeper (4), P/N 101202 (CAGE 05DK2).
3. No substitutes authorized.

NUMERICAL INDEX

Part Number	Figure and Index Number	SM&R Code
MIL-C-25369C	8-6-13	PAGZZ
101-1100-5614	8-6-7	PAGZZ
102228-1	8-6-5	PAGZZ
102228-2	8-6-6	PAGZZ
103251-4	8-6-14	PAGZZ
103251-3	8-6-15	PAGZZ
105AS100-3	8-6-10	PAGZZ
105AS100-4	8-6-11	PAGZZ
110221-1	8-6-2	PAGZZ
110230-1	8-6-3	PAGZZ
110240-1	8-6-4	PAGZZ
111210-1	8-6-1	PAGZZ
52A6600	8-6-9	PAGZZ
830AS270-1	8-6	PCGZZ
840AMLS	8-6-8	
849AML	8-6-12	PAGZZ